WHAT IS CLAIMED IS:

1. A method for transforming plant explant tissue, comprising:

   a) contacting a cotyledon explant from a plant seedling infected with an *Agrobacterium* containing DNA to be introduced into the explant with an agent that inhibits enzymatic browning of a wounded plant, plant tissue or plant cell so as to yield transformed explant tissue; and

   b) identifying transformed explant tissue.

2. The method of claim 1 wherein the cotyledon explant is from a legume seedling.

3. The method of claim 1 wherein the transformed explant tissue is identified by selection.

4. The method of claim 1 further comprising regenerating a differentiated transformed plant from the transformed explant tissue.

5. The method of claim 1 wherein the explant is from a dicot.

6. The method of claim 1 wherein the explant is from a monocot.

7. The method of claim 1 wherein the cotyledon is wounded in the region of the axillary bud or cotyledonary node prior to contacting.

8. The method of claim 1 wherein the agent is a sulfhydryl-containing agent.

9. The method of claim 1 wherein the agent is cysteine.

10. The method of claim 1 wherein the agent is glutathione, sodium thiosulfate, methionine or dithiothreitol.

11. The method of claim 1 wherein the agent is an iron chelator.

12. The method of claim 1 wherein the agent is a copper chelator.

13. The method of claim 1 wherein the agent inhibits plant polyphenol oxidase.

14. The method of claim 1 wherein the agent inhibits plant peroxidase.

15. The method of claim 1 wherein the agent is present in solid media.

16. The method of claim 2 wherein the legume is soybean.

17. The method of claim 1 wherein the DNA comprises a selectable gene.

18. The method of claim 1 wherein the DNA comprises a detectable gene.

19. The method of claim 1 wherein the DNA comprises a promoter operably linked to an
open reading frame of interest.

20. A plant produced by the method of claim 4.

21. A seed produced by the plant of claim 20.

22. A method to identify an agent that enhances *Agrobacterium*-mediated transformation of a plant cell, plant tissue or plant part, comprising:

a) contacting the plant cell, plant tissue or plant part with *Agrobacterium* containing DNA to be introduced into the plant cell, plant tissue or plant part and the agent so as to yield a transformed plant cell, plant tissue or plant, wherein the agent is not a phenolic

compound; and

b) detecting or determining whether the agent enhances *Agrobacterium*-mediated transformation of the plant cell, plant tissue or plant part relative to *Agrobacterium*-mediated transformation of a plant cell, plant tissue or plant part in the absence of the agent.

23. The method of claim 22 wherein the agent is a sulfhydryl-containing agent.

24. The method of claim 22 wherein the agent is L-cysteine.

25. The method of claim 22 wherein the plant cell, plant tissue or plant part is wounded prior to contacting.

26. The method of claim 22 wherein the cell, tissue or part is from a dicot.

27. The method of claim 22 wherein the cell, tissue or part is from a monocot.

28. The method of claim 22 wherein the cell, tissue or part is from oat.

29 The method of claim 22 wherein the cell, tissue or part is from soybean.

30. The method of claim 22 wherein the plant cell, tissue or part is regenerable.

31. The method of claim 22 wherein the plant tissue is a cotyledon explant.

32. The method of claim 22 wherein the agent inhibits plant polyphenol oxidase.

33. The method of claim 22 wherein the agent inhibits plant peroxidase.

34. The method of claim 22 wherein the agent is an iron chelator.

35. The method of claim 22 wherein the agent is a copper chelator.

36. An agent identified by the method of claim 22.

37. A method for the stable transformation of plant tissue or cells, comprising:

a) contacting plant tissue or cells with an *Agrobacterium* containing DNA and an agent selected from the group consisting of a sulfhydryl-containing agent, an iron chelator, a copper chelator, an inhibitor of plant polyphenol oxidase and an inhibitor of plant peroxidase; and

b) identifying stably transformed plant tissue or cells.

38. The method of claim 1 or 37 wherein the efficiency of stable transformation in the presence of the agent is at least 10% greater than the efficiency of transformation in the absence of the agent.

39. The method of claim 1 or 37 wherein the efficiency of stable transformation in the presence of the agent is at least 0.5% greater than the efficiency of transformation in the absence of the agent.

40. The method of claim 37 wherein the plant tissue or cells are leguminous tissue or cells.

41. The method of claim 37 wherein the transformed tissue or cells are identified by selection.

42. The method of claim 41 wherein the transformed tissue or cells are selected for in hygromycin.

43. The method of claim 3 wherein the transformed tissue is selected for in hygromycin.

44. A plant medium comprising: an amount of an agent effective to inhibit the enzymatic browning of a plant organ, tissue or cell, wherein the agent is selected from the group consisting of a sulfhydryl-containing agent, an iron chelator, a copper chelator, an inhibitor of polyphenol oxidase and an inhibitor of peroxidase.

45. The medium of claim 44 wherein the agent is cysteine.

46. The medium of claim 44 which is aqueous.

47. The medium of claim 44 which is a powder.

48. The medium of claim 46 wherein the agent is cysteine.

49. The medium of claim 48 comprising at least 50 mg/l cysteine.

50. The medium of claim 48 comprising at least 100 mg/l cysteine.

51. The medium of claim 47 wherein the agent is cysteine.

52. The medium of claim 51 which when mixed with a liquid results in a cysteine concentration of at least 50 mg/l.

53. The medium of claim 51 which when mixed with a liquid results in a cysteine concentration of at least 100 mg/l.

54. The medium of claim 46 wherein the agent is dithiothreiotol.

55. The medium of claim 54 comprising 0.75 mM dithiothreiotol.

56. The medium of claim 54 comprising 1.25 mM dithiothreiotol.

57. A method for the stable transformation of monocot plant tissue or cells, comprising:

a) contacting monocot plant tissue or cells with an *Agrobacterium* containing a recombinant DNA and one or more agents selected from the group consisting of a sulfhydryl-containing agent, methionine, an iron chelator, a copper chelator, an inhibitor of plant polyphenol oxidase and an inhibitor of plant peroxidases, which one or more agents are present in solid media in an amount effective to enhance the stable transformation of the monocot plant tissue or cells relative to corresponding monocot plant tissue or cells contacted with *Agrobacterium* in the absence of the one or more agents; and

b) identifying stably transformed plant tissue or cells.

58. The method of claim 57 or 62 wherein the efficiency of stable transformation in the presence of the agent is at least 10% greater than the efficiency of transformation in the absence of the agent.

59. The method of claim 37 or 62 wherein the efficiency of stable transformation in the presence of the agent is at least 0.5% greater than the efficiency of transformation in the absence of the agent.

60. The method of claim 37 or 62 wherein the transformed tissue or cells are identified by selection.

61. The method of claim 60 wherein the transformed tissue or cells are selected for in hygromycin.

62. A method for the stable transformation of plant tissue or cells, comprising:

a) contacting plant tissue or cells with an *Agrobacterium* containing a recombinant DNA and one or more agents selected from the group consisting of a sulfhydryl-containing agent, methionine, an iron chelator, a copper chelator, an inhibitor of plant polyphenol oxidase and an inhibitor of plant peroxidases, which one or more agents are present in solid media in an amount effective to enhance the stable transformation of the tissue or cells relative to corresponding tissue or cells contacted with *Agrobacterium* in the absence of the one or more agents; and

b) identifying stably transformed plant tissue or cells.

63. The method of claim 57 or 62 wherein the stable transformation is enhanced by at least 5-fold.

64. The method of claim 57 or 62 wherein the stable transformation is enhanced by at least 10%.

65. The method of claim 57 or 62 further comprising regenerating a differentiated transformed plant from the stably transformed plant tissue or cells.

66. The method of claim 57 or 62 wherein one agent is a sulfhydryl-containing agent.

67. The method of claim 66 wherein one agent is cysteine.

68. The method of claim 57 or 62 wherein one agent is glutathione, sodium thiosulfate, or dithiothreitol.

69. The method of claim 57 or 62 wherein one agent is an iron chelator or a copper chelator.

70. The method of claim 57 or 62 wherein one agent inhibits plant polyphenol oxidase or inhibits plant peroxidase.

71. The method of claim 57 or 62 wherein the recombinant DNA comprises a selectable marker.

72. The method of claim 57 or 62 wherein the recombinant DNA comprises a detectable marker.

73. The method of claim 57 or 62 wherein the recombinant DNA comprises a promoter operably linked to an open reading frame of interest.

74. The method of claim 68 wherein the glutathione is present at 0.4 g/L or 0.001 to 1 mM, sodium thiosulfate is present at 0.1 to 20 mM, or dithiothreitol is present at 1 g/L or 0.75 to 2 mM.

75. The method of claim 57 or 62 wherein the plant tissue or cells are maize, wheat, sugarcane or rice tissue or cells.